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METHOD AND APPARATUS FOR THREE DIMENSIONAL INSPECTION OF

ELECTRONIC COMPONENTS

ABSTRACT OF THE DISCLOSURE

Patented February 23, 1960

A three dimensional inspection system for inspecting ball
5 array devices having a plurality of balls, where the ball array
device is positioned in an optical system. An illuminator is
located to illuminate at least one ball on the ball array device.
A first optical element is positioned to transmit light to the
sensor. A second optical element is positioned to direct light
10 from the at least one ball to the sensor, where the sensor, the
first optical element and the second optical element cooperate to
obtain at least two differing views of the at least one ball, the
sensor providing an output representing the at least two
differing views. A processor is coupled to receive the output,
15 where the processor processes the output by using a triangulation
method to calculate a three dimensional position of the at least
one ball with reference to a pre-calculated calibration plane.